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[54] **PHOTOIONIZATION ION MOBILITY SPECTROMETER**

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[58] **Field of Search** ..... 250/281, 282, 286, 287, 250/288, 423 P

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[57] **ABSTRACT**

An improved photoionization ion mobility spectrometer is disclosed which utilizes a flashlamp as the source for ionization. A gas sample is introduced via a carrier gas into a ionization chamber which is part of the spectrometer cell. Ionizable molecules contained in the injected gas sample are ionized by the ultraviolet light emitted from the flashlamp. The ionized molecules are attracted by an electrostatic drift field into a drift chamber and travel therethrough against the flow of a drift gas counter-current thereto until they are captured by a collector located in the drift chamber opposite to the ionization chamber. A dopant with an effective ionization potential lower than the photon energy of the emitted light can be introduced into the ionization chamber to further improve the sensitivity and specificity.

24 Claims, 6 Drawing Sheets